Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method of regulating cytotrophoblast differentiation and migration ~~characterized by~~, the method comprising regulating the competition for binding to the cation independent mannose-6-phosphate (CIM6P) receptor between IGF-II and latent TGF-β by administration of [[any of]] a differentiation factor selected from the group consisting of IGF-II, an IGF-II ~~analogues, or antibodies~~ analogue and an antibody specific against latent TGF-β to thereby promote the interaction between said IGF-II and said CIM6P.

2. (Currently amended) A method of promoting the implantation of an embryo in the uterine decidual endometrium, ~~characterized by~~ the method comprising regulating the competition for binding to the cation independent mannose-6-phosphate (CIM6P) receptor between IGF-II and latent TGF-β by administration of [[any of]] a differentiation factor selected from the group consisting of IGF-II, an IGF-II ~~analogues, or antibodies~~ analogue and an antibody specific against latent TGF-β to thereby promote the interaction between said IGF-II and said CIM6P.

3. (Currently amended) [[A]] The method ~~according to~~ of claim 2, ~~characterized in that IGF-II, IGF-II analogues, or antibodies specific against latent TGF-β that promote the interaction between IGF-II and CIM6P are~~ wherein said differentiation factor is administered to an embryo produced by in vitro fertilization.

4. (Currently amended) [[A]] The method ~~according to~~ of claim 2, ~~characterized in that IGF-II, IGF-II analogues, or antibodies specific against latent TGF-β that promote the interaction between IGF-II and CIM6P~~ wherein said differentiation factor is administered to a pregnant female subject in need thereof.

5. (Currently amended) [[A]] The method ~~according to~~ of claim 2, ~~characterized in that IGF-II, IGF-II analogues, or antibodies specific against latent TGF-β that promote the interaction between IGF-II and CIM6P~~ wherein said differentiation factor is administered to a pregnant female subject in the first half of pregnancy.

6. (Currently amended) [[A]] The method ~~according to~~ of claim 2, ~~characterized in that IGF-II, IGF-II analogues, or antibodies specific against latent TGF-β that promote the interaction between IGF-II and CIM6P are~~ wherein said differentiation factor is administered ~~whilst~~ to an embryo while maintaining [[the]] said embryo in a relatively hypoxic environment.

7. (Currently amended) [[A]] The method ~~according to claim 1 or~~ of claim 2, ~~characterized in that the~~ wherein said embryo [[is]] comprises a mammalian embryo selected from the group consisting of a human, horse, cow, pig, goat [[or]] and sheep.

8. (Currently amended) A method of preventing the implantation of an embryo in the uterine decidual endometrium, ~~characterized by~~ the method comprising regulating the competition for binding to the cation independent mannose-6-phosphate (CIM6P) receptor between IGF-II and latent TGF-β by administration of a differentiation factor selected from the group consisting of latent TGF-β, ~~or analogues or antibodies~~ a TGF-β analogue and an antibody specific against IGF-II that inhibit the interaction between IGF-II and CIM6P.

9. (Currently amended) A method of regulating differentiation and migration of embryonic stem cells or adult stem cells, ~~characterized by~~ the method comprising regulating the competition for binding to the cation independent mannose-6-phosphate (CIM6P) receptor between IGF-II and latent TGF-β by administration of [[any of]] an differentiation factor selected from the group consisting of IGF-II, an IGF-II ~~analogues, or antibodies~~ analogue and an antibody specific against latent TGF-β that promote the interaction between IGF-II and CIM6P.

10. (Currently amended) A method of promoting terminal differentiation of embryonic stem cells or adult stem cells, ~~characterized by~~ the method comprising regulating the competition for binding to the cation independent mannose-6-phosphate (CIM6P) receptor between IGF-II and latent TGF-β and exposing said cells to reduced levels of IGF-II, ~~such that~~ whereby the stem cell CIM6P receptors are able to bind latent TGF-β and thereby promote the activation of TGF-β.

11. (Currently amended) A method of promoting stem cell division and stem cell migration ~~characterized by~~, the method comprising regulating the competition for binding to the cation independent mannose-6-phosphate (CIM6P) receptor between IGF-II and latent TGF-β and exposing said cells to increased levels of IGF-II, ~~such that~~ whereby the stem cell CIM6P receptors are unable to bind latent TGF-β and thereby inhibiting the activation of TGF-β.

12. (Currently amended) A method of diagnosing a predisposition of cytotrophoblast cells or stem cells to differentiate and migrate, ~~characterized by~~ the method comprising determining in [[the]] a mother, father or an embryo the presence of a polymorphic form of a gene wherein the level of expression of [[the]] said gene serves to regulate the competition for binding to the cation independent mannose-6-phosphate (CIM6P) receptor between IGF-II and latent TGF-β and, ~~such that~~ whereby the CIM6P receptors have altered ability to bind latent TGF-β and thereby altered ability to activate TGF-β.

13. (Currently amended) [[A]] The method ~~according to~~ of claim 12, ~~characterized in that the~~ wherein said gene is selected from the group consisting of an insulin-like growth factor II gene, a urokinase plasminogen activator gene, a urokinase plasminogen activator receptor gene, a CIM6P (type-2 IGF) receptor gene, a TGF-β gene, a plasminogen gene [[or]] and any polymorphic forms thereof.

14. (Currently amended) A method of diagnosing a predisposition of cytotrophoblast cells to differentiate and migrate, ~~characterized by~~ the method comprising determining in [[the]] a mother, father or embryo the sequence of nucleotides in the DNA near the insulin-like growth factor II gene ~~known as the insulin (INS) variable number of tandem repeats (VNTR),~~ to thereby determine the capacity of the cytotrophoblast to migrate into the uterine decidua and the capacity of the placenta to transport substrates to the embryo, said insulin-like growth factor II gene comprising the insulin (INS) variable number of tandem repeats (VNTR).

15. (Currently amended) A method of determining the ability of cytotrophoblast cells to differentiate and migrate, ~~characterized by measurement of~~ the method comprising measuring the amount of messenger RNA transcribed from the insulin-like growth factor II gene in ~~embryos~~ an embryo.

16. (Currently amended) A method of determining the ability of cytotrophoblast cells to differentiate and migrate, ~~characterized by measurement of~~ the method comprising measuring the amount of insulin-like growth factor II protein secreted by a mammalian ~~embryos~~ embryo.

17. (Currently amended) A method of determining the ability of cytotrophoblast cells to differentiate and migrate, ~~characterized by measurement of~~ the method comprising measuring the amount of insulin-like growth factor II protein circulating in maternal and paternal blood.